

What is claimed is:

1. A peptide comprising consecutive amino acids, the sequence of which amino acids is shown in SEQ ID NO: 2.

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2. The peptide of claim 1, wherein the peptide is membrane permeable.

3. A composition comprising a complex between the peptide of claim 1 and an oligonucleotide.

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4. The composition of claim 3, further comprising an aqueous carrier.

5. The composition of claim 3, wherein the oligonucleotide comprises from about 10 to about 40 consecutive nucleotides.

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6. The composition of claim 5, wherein the consecutive nucleotides of the oligonucleotide have a sequence capable of inhibiting translation of a mRNA into a protein.

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7. The composition of claim 6, wherein the oligonucleotide comprises phosphorothioate linkages.

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8. A method of delivering an oligonucleotide into a cell

comprising:

a) first contacting the cell with a lysosomotropic agent, and

b) then contacting the cell with the composition of claim 3, under conditions permitting the composition to enter the cell and thereby deliver the oligonucleotide into the cell.

9. The method of claim 8, wherein the lysosomotropic agent is chloroquine.

10. A method of inhibiting expression of a protein in a cell comprising delivering an oligonucleotide into the cell using the method of claim 8, under conditions permitting the oligonucleotide, once inside the cell, to hybridize with a nucleic acid encoding the protein and thereby inhibit expression of the protein from the nucleic acid in the cell.

11. A peptide comprising consecutive amino acids, the sequence of which amino acids is shown in SEQ ID NO: 1.

12. The peptide of claim 11, wherein the peptide is membrane permeable.

13. A composition comprising a complex between the peptide of claim 11 and an oligonucleotide.

14. The composition of claim 13, further comprising an aqueous carrier.

5 15. The composition of claim 13, wherein the oligonucleotide comprises from about 10 to about 40 consecutive nucleotides.

10 16. The composition of claim 15, wherein the consecutive nucleotides of the oligonucleotide have a sequence capable of inhibiting translation of a mRNA into a protein.

15 17. The composition of claim 13, wherein the oligonucleotide comprises phosphorothioate linkages.

20 18. A method of delivering an oligonucleotide into a cell comprising contacting the cell with the composition of claim 13, under conditions permitting the composition to enter the cell and thereby deliver the oligonucleotide into the cell.

25 19. A method of inhibiting expression of a protein in a cell comprising delivering an oligonucleotide into the cell using the method of claim 18, under conditions permitting the oligonucleotide, once inside the cell, to hybridize with a nucleic acid encoding the protein and thereby inhibit expression of the protein from the nucleic acid in the cell.

20. The method of claim 18, wherein the cell is contacted with a lysosomotropic agent prior to contacting the cell with the composition.

5 21. The method of claim 20 wherein the lysosomotropic agent is chloroquine.

22. The method of claim 6 or 16, wherein the sequence of the oligonucleotide is shown in SEQ ID NO:5.

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23. The method of claim 6 or 16, wherein the sequence of the oligonucleotide is shown in SEQ ID NO:6.

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24. The method of claim 10 or 19, wherein the protein is Protein Kinase C alpha.

25. The method of claim 10 or 19, wherein the cell is of mammalian origin.

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26. The method of claim 25, wherein the cell is of human origin.

27. The method of claim 26, wherein the cell is a cancer cell.

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28. The method of claim 10 or 19, wherein the nucleic acid is a deoxyribonucleic acid.

29. The method of claim 10 or 19, wherein the nucleic acid is a ribonucleic acid.

5 30. The method of claim 29, wherein the ribonucleic acid is a messenger ribonucleic acid.

10 31. A pharmaceutical composition comprising a therapeutically effective amount of the composition of claim 3 or 13 and a pharmaceutically acceptable carrier.

15 32. A method of making a composition, comprising contacting an oligonucleotide with the peptide of claim 1 under conditions permitting the peptide to form a complex with the oligonucleotide.

20 33. A method of making a composition, comprising contacting an oligonucleotide with the peptide of claim 11 under conditions permitting the peptide to form a complex with the oligonucleotide.

25 34. A method of increasing the sensitivity of a cancer cell to an anti-cancer agent which comprises inhibiting expression of a protein in the cancer cell using the method of claim 10 or 19.

35. The method of claim 34, wherein the anti-cancer agent

is paclitaxel.

36. The method of claim 35, wherein the protein is protein kinase C alpha.

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37. The method of claim 36, wherein the cancer cell is a bladder cancer cell.

38. The composition of claim 3 or 13, wherein the oligonucleotide is longer than 40 consecutive nucleotides.

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39. A method of delivering an oligonucleotide into a cell comprising contacting the cell with the composition of claim 38, under conditions permitting the composition to enter the cell and thereby deliver the oligonucleotide into the cell.

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